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6-70-02

Docket No. 218972US0/sdc

UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF: Yoichi MORI

SERIAL NO: 10/060,224

GAU: 1754

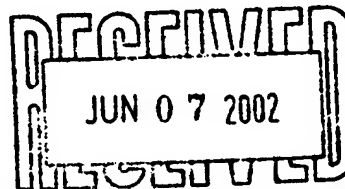
FILED: February 1, 2002

EXAMINER:

FOR: PROCESS AND APPARATUS FOR TREATING GAS CONTAINING FLUORINE-CONTAINING COMPOUNDS AND CO

**INFORMATION DISCLOSURE/RELATED CASE STATEMENT UNDER 37 CFR 1.97**

ASSISTANT COMMISSIONER FOR PATENTS  
WASHINGTON, D.C. 20231



SIR:

Applicant(s) wish to disclose the following information.

**REFERENCES**

- ☒ The applicant(s) wish to make of record the references listed on the attached form PTO-1449. Copies of the listed references are attached, where required, as are either statements of relevancy or any readily available English translations of pertinent portions of any non-English language references.
- ☐ A check is attached in the amount required under 37 CFR §1.17(p).

**RELATED CASES**

- ☐ Attached is a list of applicant's pending application(s) or issued patent(s) which may be related to the present application. A copy of the patent(s), together with a copy of the claims and drawings of the pending application(s) is attached along with PTO 1449.
- ☐ A check is attached in the amount required under 37 CFR §1.17(p).

**CERTIFICATION**

- ☐ Each item of information contained in this information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this statement.
- ☐ No item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application or, to the knowledge of the undersigned, having made reasonable inquiry, was known to any individual designated in 37 CFR §1.56(c) more than three months prior to the filing of this statement.

**DEPOSIT ACCOUNT**

- ☒ Please charge any additional fees for the papers being filed herewith and for which no check is enclosed herewith, or credit any overpayment to deposit account number 15-0030. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

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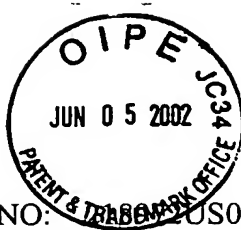
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Form PTO 1449 (Modified)		U.S. DEPARTMENT OF COMMERCE PATENT & TRADEMARK OFFICE		ATTY DOCKET NO. 218972US0		SERIAL NO. 10/060,224	
LIST OF REFERENCES CITED BY APPLICANT				APPLICANT Yoichi MORI			
				FILING DATE February 1, 2002		GROUP 1754	
U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
	AA						
	AB						
	AC						
	AD						
	AE						
	AF						
	AG						
	AH						
	AI						
	AJ						
	AK						
	AL						
	AM						
	AN						
FOREIGN PATENT DOCUMENTS							
		DOCUMENT NUMBER	DATE	COUNTRY	TRANSLATION YES NO		
	AO	WO 00/09258	02/24/2000	WIPO (with English Abstract and corr. USSN 09/763,126)			X
	AP	2001-137659	05/22/2001	JAPAN (with English Abstract and corr. USSN 09/714,220)			X
	AQ	2001-293335	10/23/2001	JAPAN (with partial English translation and corr. WO 01/76725)	X		
	AR	WO 01/76725	10/18/2001	WIPO (with English Abstract)			X
	AS	11-70322	03/16/99	JAPAN (with English Abstract and corr. EP 0 885 648)			X
	AT	0 885 648	12/23/98	EUROPE			
	AU						
	AV						
OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, etc.)							
	AW	K. MIZUNO, et al., Global Environment and Energy Issues Proceedings, pages 293-294, "CATALYTIC DECOMPOSITION OF CHLOROFLUOROCARBONS", November 19-21, 1990					
	AX						
	AY						
	AZ						
Examiner					Date Considered		

\*Examiner: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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SERIAL NO: 10/060,224

Group Art Unit: 1754

STATEMENT OF RELEVANCY

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**Reference AO (WO 00/009258) on Form 1449:**

This reference discloses a method for decomposing a perfluoro compound by contacting it with  $\gamma$ -alumina at 800-900°C in the presence of  $H_2$  and  $O_2$ . It also discloses a method for removing  $SiF_4$ , which will be an anticatalyst for  $\gamma$ -alumina and a method for subjecting HF which results from decomposition of the perfluoro compound to post-treatment with water. However, this reference does neither teach nor suggest a process for treating a gas containing fluorine-containing compounds and CO according to the present invention; and which comprises contacting the gas with  $O_2$  and  $H_2O$  in the absence of a catalyst at a temperature of 850°C or higher to oxidize the CO to  $CO_2$ , and then contacting the gas with  $\gamma$ -alumina catalyst at a temperature of 600-900°C to decompose the fluorine-containing compounds. Further, this reference is also silent about the use of  $\gamma$ -alumina having a specific crystal structure.

**Reference AP (JP 2001-137659) on Form 1449:**

This reference discloses a method for decomposing a perfluoro compound by contacting it with  $\gamma$ -alumina at 800-900°C in the presence of  $H_2$  and  $O_2$ . It also discloses a method for removing  $SiF_4$ , which will be an anticatalyst for  $\gamma$ -alumina and a method for subjecting HF which results from decomposition of the perfluoro compound to post-treatment with water. However, this reference does neither teach nor suggest a process for treating a gas containing fluorine-containing compounds and CO according to the present invention; and which comprises contacting the gas with  $O_2$  and  $H_2O$  in the absence of a catalyst at a temperature of 850°C or higher to oxidize the CO to  $CO_2$ , and then contacting the gas with  $\gamma$ -alumina catalyst at a temperature of 600-900°C to decompose the fluorine-containing compounds. Further, this reference is also silent about the use of  $\gamma$ -alumina having a specific crystal structure.

STATEMENT OF RELEVANCY**Reference AQ (JP 2001-293335) on Form 1449:**

This reference discloses that  $\gamma$ -alumina having specific crystal structure as defined in Claim 2 of the present application is used as an alumina catalyst for treating exhaust gas containing fluoro-compound. However, this reference neither teaches nor suggests a process for treating a gas containing fluorine-containing compounds and CO according to the present invention which comprises contacting the gas with  $O_2$  and  $H_2O$  in the absence of a catalyst at a temperature of  $850^\circ C$  or higher to oxidize the CO to  $CO_2$ , and then contacting the gas with  $\gamma$ -alumina catalyst at a temperature of  $600-900^\circ C$  to decompose the fluorine-containing compounds.

**Reference AS (JP 11-703322) on Form 1449:**

This reference discloses a method for decomposing PFC by contacting it with an alumina-containing catalyst at a high temperature in the presence of  $H_2O$ . However, this reference neither teaches nor suggests a process for treating a gas containing fluorine-containing compounds and CO according to the present invention which comprises contacting the gas with  $O_2$  and  $H_2O$  in the absence of a catalyst at a temperature of  $850^\circ C$  or higher to oxidize the CO to  $CO_2$ , and then contacting the gas with  $\gamma$ -alumina catalyst at a temperature of  $600-900^\circ C$  to decompose the fluorine-containing compounds. Further, this reference is also silent about the use of  $\gamma$ -alumina having a specific crystal structure.

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STATEMENT OF RELEVANCY

**Reference AW on Form 1449:**

It reports that chlorofluorocarbon gas containing F and Cl was able to be decomposed by 75% by adding H<sub>2</sub>O to the gas and contacting it with  $\gamma$ -alumina at 500°C. However, this reference neither teaches nor suggests a process for treating a gas containing fluorine-containing compounds and CO according to the present invention which comprises contacting the gas with O<sub>2</sub> and H<sub>2</sub>O in the absence of a catalyst at a temperature of 850°C or higher to oxidize the CO to CO<sub>2</sub>, and then contacting the gas with  $\gamma$ -alumina catalyst at a temperature of 600-900°C to decompose the fluorine-containing compounds. Further, this reference is also silent about the use of  $\gamma$ -alumina having a specific crystal structure.